Monitoring and Managenment of Visitor Flows in Recreational and Oprotected Areas
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Public Use of the Public Parks and Protected Areas of Budapest

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Abstract: Based on the series of studies investigating the public uses of various public parks and nature conservation areas of Budapest, a comparative evaluation was prepared which allowed us to quantify the actual recreational role of these two types of green areas in the green area system of large cities. The approach involved on-site interviews with questionnaires and on-site monitoring, with additional urban planning analyses. The results provided direct help in the development of green area management guidelines for cities and in the preparation of future management plans for protected areas. In addition, the results allowed us to develop planning guidelines and a basis for developing new means of environmental awareness raising and education.

INTRODUCTION

Park use studies in Budapest have been prepared regularly since 1986. Of great importance was 1994 because a comprehensive, simultaneous investigation was done in various types of public parks. In the last couple of years, public uses of public parks in Budapest were individually studied in connection with investment projects or city development plans. The data gathered throughout these years are now also suitable for assessing changes or trends in such uses.

In Hungary, the exact evaluation of the visitedness and public uses of protected areas has been brought into focus only for about 1 or 2 years. A series of similar, all-round-year comparative studies on the locally protected areas of Budapest were prepared for the first time in 2000.

Primarily, this study presents the results of the studies of 1994 on park uses and those of the studies of 2000 on protected areas (Nagy, 1997, Kellner, Nagy, 2001). The large number of data obtained during these two series of studies is suitable for comparative evaluation.

OBJECTIVES

The assessment of both public parks and protected areas had a number of objectives.

Evaluation of the data obtained provided direct help to the practical job in, for example, the maintenance of green areas, the design of playgrounds, the installation of additional pieces of furniture, reconstruction of some parts of parks according to new needs, the development of annual management plans and the design of educational pathways (Kellner, Nagy 2001).

In addition, the results form the comparative studies assisted both the planner and the decision-maker in the preparation of city development plans and conceptions, and as a basis for justifying individual plans and actions (Nagy, Pinter, Wettstein, 1998, Nagy, Szilagyi, 1998).

Furthermore, the information gained from these studies were essential in developing planning guidelines, green area development strategies and design indices (Nagy, 1997).

METHODS

The primary means for data collection included on-site interviews with questionnaires, structured, on-site monitoring (personal observation) and visitor flow counting, combining at least two of these approaches in each case. Depending on the topic, this was supplemented by demographic analyses, deep interviews, targeted "traffic" counting and city development investigations (evaluation of land use, traffic, parking, institutions, surrounding residential areas, etc.).

Normally, a dBase-based inquiry system was used to reveal the relationships between the test data.

In 1994 and 2000, on-site questionnaires were used in combination with on-site monitoring using "tables". The questionnaire included questions focusing on visiting habits (e.g. frequency, use of public transport), purpose of the visits, duration of the visits, determination of the extent of the catchment area and assessment of new needs.

On-site monitoring was done using previously compiled, matrix type tables to record the number, age and activity of the people staying in the park or in a part thereof.

STUDY LOCATIONS

During the studies, data were collected in a total of 8 locations in 5 parks. One of the criteria for selecting study locations aimed at selecting locations different in type and size (0.5 ha-100 ha) so as to

represent the diversity of the parks in Budapest. Thus, two large city parks on the east (Pest) side (*Városliget*, *Népliget*), one park in a blockhouse area (in *Kelenföld*, Buda side) and two downtown public gardens (*Károlyi Garden, Hild Square*) were selected.

Similar criteria were used in selecting the locations for the assessment of protected areas.

The study locations included:

- *Apáthy Cliff:* part of the protected forest area of Buda and a traditional target for excursions in Budapest,
- *Rupp Hill:* located in the outskirts, adjacent to areas of intensive residential development zones,
- *Róka Hill:* former limestone quarry near to a blockhouse area,
- *Kis-Sváb Hill:* located nearest to the inner city, an island-like hill wedged in a family house zone,
- *Lake Naplás:* located in the outskirts of the east side (Pest), in a plain area, and includes a huge secondary lake, a creek and a forest area.

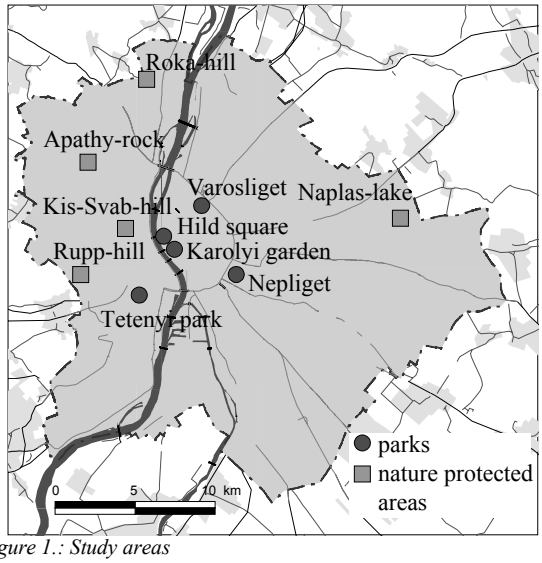

Figure 1.: Study areas

DATE AND DURATION OF THE STUDIES

Sampling for the park use studies were done in two phases, between 1 June, 1994 and 30 September, 1994, and between 1 October, 1994 and 15 December, 1994.

In the protected areas, data collection occurred continuously in three phases between April and December, 2000.

Samples were taken at predetermined points in time, representing both weekdays and weekends, at various parts of the day and under various weather conditions.

AMOUNT OF DATA

The comparative studies on parks involved 1500 questionnaires and 128 targeted monitoring events in 5 parks.

In the protected areas data from a total of 750 questionnaires were processed. As a result of on-site monitoring, 220 data tables were evaluated.

In addition to the quantifiable data, subjective opinions of the visitors were also recorded. Thus, an additional job was to classify and evaluate such opinions.

MAIN RESULTS

Characteristics of the uses of parks in Budapest

- 60% of the visitors visit their favourite park every day.
- Among park users, the ratio of regular visitors is increasing.
- The catchment area of parks consists of the residential areas within 15 minutes distance, i.e. 75% of the visitors live within this area.

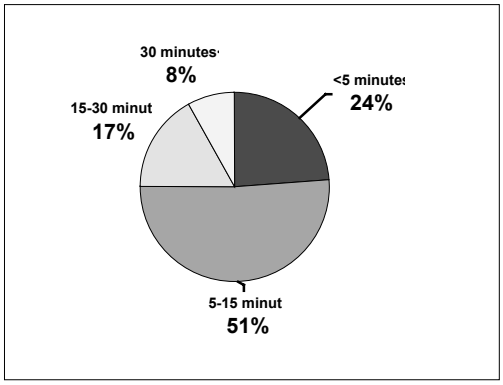

Figure 2.: „How long does it take to reach the park?"

- Significant differences were observed between the catchment area of the two large (100 ha) parks. The popularity of *Városliget* and the surrounding town-like residential areas make it attractive to visitors form larger distances than *Népliget*, which is of similar size but of lower prestige and surrounded by industrial areas.
- On average, visitors spend 1-2 hours in the parks during one visit. The time spent on visiting parks have been dramatically decreased over the past years.

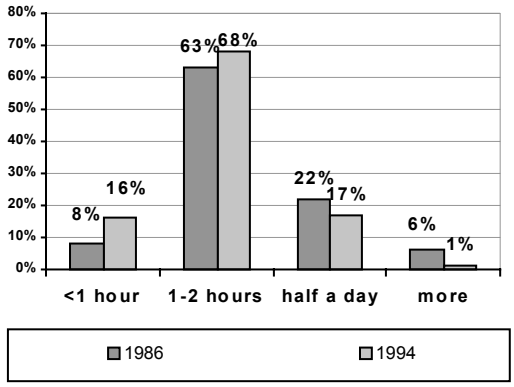

Figure 3.: Change of spent time in the city park Varosliget

- On average, visitors of public parks changes six times per day. This daily "turnover" shows an increasing tendency (in the 70's the average turnover was four times according to certain studies).
- The percentage of visitors above 30 years of age, including pensioners, is much lower than the average in Budapest, and this tendency is augmenting. Those in the active age (i.e. in the working age) would go to parks at an increasingly lower frequency. Most probably, this is due to the permanent time pressure. On the other hand, pensioners would justify their absence by public safety reasons.

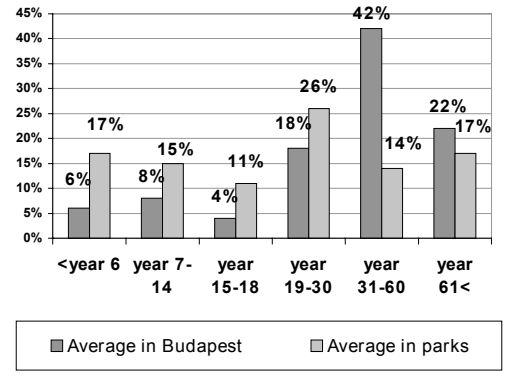

Figure 4.: Share of age-groups

- Today, park users would mostly pursue moderately active (e.g. walking, playing) and inactive (sitting, sunbathing) activities. Active activities involving a lot of exercises are almost exclusively typical to those below 20 years of age.
- The percentage of those walking with dogs is increasing at a very high speed and this is a source of conflict in the parks of Budapest. (In a 10 ha park located in an intensively developed, small house residential area, almost half of the visitors were walking with dogs!)
- Downtown gardens are more visited during the weekdays than in the weekends.
- The recreational role of public parks in Budapest is lower in the weekends than during the weekdays. That is, parks are more intensively used during the weekdays.
- Public parks and gardens are more like a neutral meeting points, with increasing agora character.

Results of the studies in protected areas (nature conservation areas)

- Mostly, the purpose of the visits is to spend one's leisure time outdoors, in good air and natural environment. The ratio of visitors specifically visiting these places to see the natural values is less than expected (12%). Every fifth visitor uses the protected areas as a place for jogging or cycling. A part of the young would regularly meet friends. Many come to walk their dogs.
- Protected areas located in the traditional excursion targets are more visited in spring and fall, i.e. during the excursion season.
- The island-like areas, which are surrounded by residential zones, are almost only known to and visited by those living in the neighbourhood.
- Most of the visitors of protected areas are regular visitors, some areas have almost like a clientele. Almost half of the visitors visit the specified area on a weekly basis. Mainly in the case of island-like areas (surrounded by residential areas), the percentage of regular visitors can be as high as 80% (dog owners!).

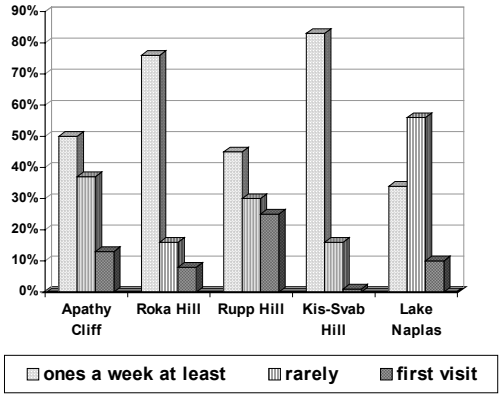

Figure 5.: Frequency of visits

- On the basis of the time spent to arrive to the specified area, 60% of the visitors of protected areas live within a distance of 15 minutes. Apáthy Cliff, which is also an excursion target, and Lake Naplás are visited form larger distances, too.

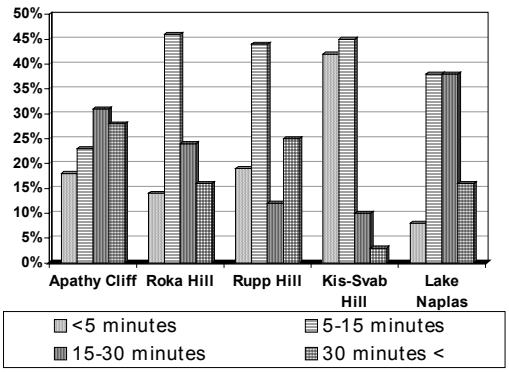

Figure 6.: Percentage of the spent time to reach the area

- On average, every second visitor arrives on foot, and 14% comes by bicycle. In the case of Lake Naplás, which is located at a larger distance from residential areas and is difficult to reach by public transport, 70% of the visitors arrive by car.

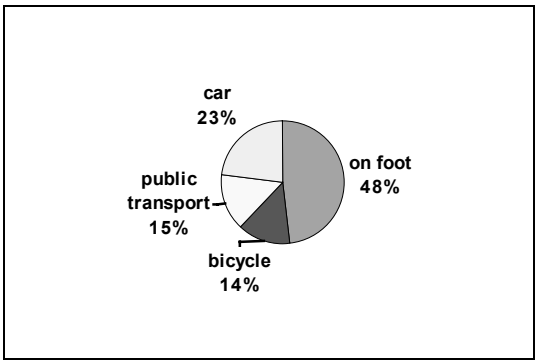

Figure 7.: „How do you reach the area?"

- Most of the visitors visit the protected areas in the weekend, in the afternoon period. The number of visitors to island-like areas is considerable during the weekdays, too.
- The biggest problem in almost all locations is litter and periodic abuses. In addition, in places where many walk with dogs (*Kis-Sváb Hill*) or rides a bicycle (*Apáthy Cliff*), or where parking places are not available (*Lake Naplás*) public use may also create direct damages to habitats (soil compaction, treading, erosion).
- The level of education among visitors to protected areas is much higher than the average in Budapest, and is also slightly above the average of public park visitors.
- People living in family houses with gardens are more bound to protected areas, and would visit such places at a higher frequency than those living in blockhouse areas of in the inner city.
- The protected areas of Budapest are not completely known even to the visitors. On average, 80% of the visitors were aware to be in a protected area. Most of them had this information form the local signs. Most of the children heard about protected areas in the school or from the parents. The adult population would gather information mostly form local newspapers. However, a remarkable number of people believed that all the large parks in Budapest are protected areas.

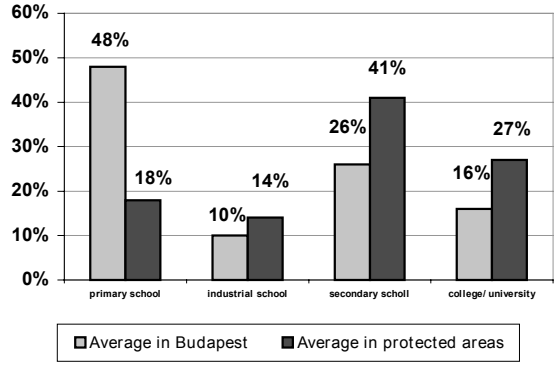

Figure 8.: Level of the education

COMPARISON OF THE VISITING HABITS IN THE PUBLIC PARKS AND IN THE PROTECTED AREAS OF BUDAPEST

Based on the investigations, protected areas are also used as places to spend leisure time and play an important role in public recreation. One of the reasons is that Budapest has few green areas in the direct neighbourhood of residential areas, and the overall size of green area per person is also low (as low as 10 m^2 per person, even if the forest zones are also included).

In the areas where public parks are missing, the use of protected areas (i.e. frequency and intensity of visiting, characteristics of the daily turnover, etc.) is similar to that of public parks. Similarly, the percentage of those walking with dogs is high, as is in the public parks of Budapest. In other protected areas the uses are typical of a park forest. The varied cliff configurations and geological formations attract the young mostly as playgrounds for adventure types of activities.

However, there is a significant difference between the motivation of visitors to public parks and protected areas. Many people like to go to protected areas because, in contrast to public parks, the vegetation is natural, and these are the only areas in a city where nature can be enjoyed in its original state. In general, visitors to protected areas are also more bound to public parks. However, many of the park users only know and visit "their own" nearest park.

Also, assessment of crowdedness is different in the protected areas. Visitors would already complain about crowdedness if more than 2 or 3 groups (families) are within eyeshot, simultaneously in the same part of the area. In the case of public parks the feeling of crowdedness depends on the size of the park. In the case of small public gardens, intensive use is better tolerated, whereas in large city parks, visitors would feel much comfortable in a quiet, less

intensively used part of the park, with the exception of walkways, playgrounds and sports fields.

With respect to the percentage of cyclists, there is a surprising difference between public parks and protected areas. The results show that the average ratio of cyclists is only 4% in public parks, but is as high as 13% in protected areas, although cycling is forbidden in certain parts of such protected areas. More than twice as much people go to protected areas by bicycle than to public parks. However, there is an interesting similarity in that the percentage of those arriving on foot is exactly the same, i.e. 48% for both types of green areas. Visitors of the parks and gardens much more frequently arrive by public transport, whereas almost one fourth of the visitors of protected areas arrive by car due to the larger distances and the difficulties with public transport.

Much similarly to public parks, most of the protected areas have regular visitors, some of them even have a clientele. Only 30% of the visitors of protected areas is occasional visitor and the rest visit these places on a weekly basis.

The primary catchment area for both parks and protected areas consists of the surrounding residential zones within a distance of 15 minutes. In spring and fall, i.e. during the excursion season, protected areas have a slightly larger catchment area with every fifth visitor travelling more than 30 minutes to arrive.

Age distribution of the visitors is similar in parks and protected areas. The percentage of those between 31 and 60 years of age is higher, but the percentage of those younger than 6 and older than 60 is lower in protected areas than in public parks. The percentage of those in the school years and of the youth is almost the same.

Distribution according to the level of education is the same for both types of areas. The results demonstrate that the green areas of Budapest, both natural and near natural, are visited by the more educated, with an outstandingly high percentage of people with college/university level education.

PRACTICAL USE OF THE RESULTS

Primarily, park use studies are prepared for the purpose of planning in the best accordance with public needs and of developing planning and management guidelines. In addition, the evaluation of these results creates a basis for recommendations that we prepare with regard to developing green area policy guidelines, and justifying and supporting municipality decisions. Investigations in the protected areas serve as a basis for the assessment of recreational loadability and for the identification of the public role of these areas within the green area system of Budapest.

The study results have been used for the following specific objectives so far:

- Defining the main function for proposed future public parks (e.g. sports park, events park).
- Preparing guidelines for green area planning.
- Identifying the green area development objectives of development programs and regulation plans.
- Measure and design of parking places based on actual demand.
- Measure and design of playgrounds.
- Identifying buffer zones for protected areas.
- Recommendations on the assignment of the most loadable visitors' zones in protected areas.
- Preparation of recommendations to improve education and awareness raising with regard to nature conservation.

SUMMARY, CONCLUSIONS

The present series of studies indicated that such data collection methods resulted in a database (not available from other sources) that, when evaluated and analysed for potential relationships, provides practical assistance in the development of green areas and in the management – in the good sense – of the natural values of Budapest.

Quantified results demonstrated that protection of the nature conservation areas in a city with a population of 1.8 million should not involve hermetic, reservation type of protection, i.e. absolute elimination of visitors. In large cities where the number of public parks is low or the availability of green areas is scarce, protected areas have an additional, special recreational role.

At the same time, island-like protected areas (i.e. those surrounded by residential areas) compensate for the missing public parks in a given zone, therefore their use is similar to that of a park.

Such recreational load should be considered in the management of protected areas. Protection of the endangered, sensitive habitats and zones is only possible if the intensive uses may be canalised to other parts of the area. These would be the locations for the "equipment, and furniture" for raising attention, offering interactive programs or interesting information, which can provide long term and valuable assistance in public education and awareness raising with regard to nature conservation.

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